

REMARKS

Corrected drawings were requested. Claims 10 to 12, 14 and 16 to 18 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.

Claims 10 to 12, 14 and 16 to 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Leclercq (US 4,659,538).

Reconsideration of the application based on the following remarks is respectfully requested.

Claims 10 and 16 have been amended.

Drawing

Corrected drawings were requested designating Figure 1 as Prior Art.

A replacement sheet is concurrently provided herewith.

35 U.S.C. §112 Rejections

Claims 10 to 12, 14 and 16 to 18 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.

The Office Action asserts that in claims 10 and 16 there is “neither an adequate description nor enabling disclosure as to how and in what manner the fixing portion of the annular member can fit into the centering hole where the outer diameter of said member is larger than said hole.”

Claims 10 and 16 have been amended for clarity.

The Office Action asserts that in claims 10 and 16 there is “neither an adequate description nor enabling disclosure as to how and in what manner the resilient bush can have such apertures along its entire length and still be in a single structure. If said apertures have the recited configuration, the bush will fall apart into several pieces.”

Claims 10 and 16 have been amended. Support found on page 13 of the Substitute Specification, lines 21 to 23 and page 14 lines 1 to 5, for example.

Withdrawal of the rejection under U.S.C. 35 §112, first paragraph, is respectfully requested.

35 U.S.C. §103(a) Rejections

Claims 10 to 12, 14 and 16 to 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Leclercq (US 4,659,538).

Leclercq discloses an apparatus for limiting the effect of axial hydraulic flow force exerted on fuel assemblies of water-cooled nuclear reactors of the “type secured with a certain axial displacement, by means of centering pins fixed onto the upper and lower core plates of internal equipment and sliding in corresponding hollow cylindrical housings carried by the said assemblies.” (Col. 2, lines 34 to 39).

Claim 10 has been amended to recite in part, “the portion of the bush comprising the flexible arms having an outer diameter smaller than the diameter of the centering hole and an annular supporting surface that projects radially inside the bush in the free end portion of the flexible arms that have an inner diameter that is smaller than the diameter of the centering pins wherein the centering hole of the at least one end piece of the fuel assembly is constructed to have a diameter that is substantially equal to the outer diameter of the fixing portion of the resilient bush, and wherein the resilient bush is fixed in the hole of the at least one end piece.”

As mentioned in the Office Action, Leclercq fails to teach or show “an annular supporting surface that projects radially inside the bush,” as recited in claim 10. This supporting surface is more than mere design choice. See Substitute Specification page 15, last paragraph, for example. The annular projection helps optimize friction on the centering pin by focusing the friction on a specific area of the resilient bush, thus lowering the impact of manufacturing tolerances or irradiation deformations on the fuel assembly. Moreover, the Office Action fails to address the limitation “in the free end portion of the flexible arms,” as recited in claim 10. Even if somehow one would have placed an annular projection in Leclercq (which it is respectfully submitted they would not have), there is no reason or motivation to have placed it “in the free end portion of the flexible arms” as recited in claim 10. This feature further helps optimizing friction through the elastic deformation of the flexible arms. (See Substitute Specification page 15, line 28 to page 16, line 2, for example).

Claim 16 has been amended to recite in part, “at least two flexible arms that are separated from each other by at least two apertures of axial direction over another portion of the axial length of the bush between the fixing portion and a free end of the bush, the two flexible arms having an outer diameter that is smaller than the diameter of the fixing portion and an annular supporting surface that projects radially inside the bush in a free end portion of the flexible arms that have an inner diameter that is smaller than the diameter of the centering pins that are inserted into the holes of the end piece.”

Leclercq fails to teach or show “an annular supporting surface that projects radially inside the bushing,” as recited in claim 16. See Substitute Specification page 15, last paragraph. The annular projection helps optimize friction on the centering pin by focusing the friction on a specific area of the resilient bush, thus lowering the impact of manufacturing tolerances or irradiation deformation on the fuel assembly. Moreover, the Office Action fails to address the limitation “in the free end portion of the flexible arms,” as recited in claim 16. This feature further helps optimize friction through the elastic deformation of the flexible arms. Even if somehow one would have placed an annular projection in Leclercq (which it is respectfully submitted they would not have), there is no reason or motivation to have placed it “in a free end portion of the flexible arms,” as recited in claim 16 in order to further optimize friction between the resilient bush and the centering pin through deformation of the flexible arms. (See Substitute Specification page 15, line 28 to page 16, line 2, for example).

Withdrawal of the rejection of independent claims 10 and 16 under 35 U.S.C. §103(a) and the dependent claims 11, 12, 14, 17 and 18 is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance and applicants respectfully request such action.

If any additional fees are deemed to be due at this time, the Assistant Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

Respectfully submitted,

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